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NEW N. A. LEAFHOPPERS BELONGING TO *PARABOLOCRATUS* AND RELATED GENERA.

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One ordinarily thinks of leafhoppers as found on leaves or stems well above the ground line and depending upon their excellent leaping ability for protection. The writer described the genus *Memnonia* in 1900, including two species that were found, both larvae and adults, hiding in the dirt beneath the overhanging leaves of clump grasses. Recently two more species in this genus and one in *Parabolocratus* were found to have similar habits. These captures called to mind the fact that the only known females of *Neoslossonia putnami* Osb. were dug out from under the margins of wire grass clumps in Florida by W. E. Stone and the writer. In all of these species the males are small, dark and active, and are occasionally swept, while the females are much larger, usually paler and rarely found unless the dirt and debris under the margins of the clumps is disturbed, when they will be seen to crawl about and attempt to hide. It is probable that a much larger number of species with similar adaptations will be found when more attention is paid to these habitats.

Parabolocratus nimbosus Ball, n. sp.

Resembling *grandis* Shaw in form, with a broader head than in *viridis;* female dark brown, male almost black. Length ♂ 5 mm., ♀ 7.5 mm. Vertex in the single (ternal) female much longer than its basal width; the lateral margins narrowing but little for nearly half the length, then forming a paraboloid apex. Both the disc of the vertex and the face inflated. Male with a broad paraboloid thin-margined vertex about as in the female of *viridis,* much broader and more foliaceous than in the male of *viridis.*

Elytra in the (ternal) female exposing the last segment of the tergum, their apices rounding. In the male they equal the apex of abdomen and in the normal flaring position appear almost truncate. Female segment short and only slightly rounding behind; ovipositor exceeding the pygofers by about its width. Male plates slightly narrower posteriorly than in *viridis*, their acute apices separated by the keel of the pygofers. Pygofers with the anal opening much smaller and more vertical than in *viridis* so that the plates do not reach it. In *viridis* the pygofers have an incision on the ventral margin with a semicircular flap before the oblique opening; in this species the ventral keel is entire.

Color.—The males black or dark brown above and below, paler examples may have lighter areas inside the margins of the vertex and elytra; light arcs on face and the tips of plates light; the slightly ternal female is brown above and paler below.

Holotype ♂, ten paratype ♂, the allotype female and many nymphs taken by the writer, June 18, 1936, at 9000 ft. elevation about 5 miles east of "Old Baldy" in the White Mountains, Arizona.

Parabolocratus spadix Ball, n. sp.

Resembling *brunneus* Ball, but with a more definitely angled head with thinner margins. Green, the male with the elytra a uniform rich brown. Length ♀ 5.5 mm., ♂ 4 mm.

Vertex in female broader than in *brunneus* with the disc concave and the margin raised and definite anteriorly instead of convex and rounding into the thick margin throughout. Face broader and less inflated. Male vertex over one-third longer and more acute; the disc concave anteriorly, forming a sharp margin instead of a rounding one.

Elytra longer in both sexes covering all but the pygofers in the female and equalling the pygofer spines in the male. Male plates similar in form to those in *brunneus*, but shorter, covering little more than half of the pygofers.

Color.—Females green in both species, males bright green with the elytra a deep rich red-brown with the nervures concolorous in *spadix* while in *burnneus* the male elytra are striped with pale brown with the nervures darker in sharp contrast.

Holotype ♂ Santa Rita Mountains, July 18, 1931; allotype ♀ July 13, 1930, and two female and six male paratypes Baboquivari Mts. August 29, 1931. All taken by the writer in southern Arizona. Two male paratypes from Dr. Beamer and returned to him one, Silver City, N. Mex., July 22, 1936 (Lindsey), the other Baboquivari Mts. July 19, '32 (Beamer).

Parabolocratus fenestrellus Ball, n. sp.

Resembling *spadix*, except the female has a much longer ovipositor, the male with a shorter, thicker head and about six ivory spots in the elytra. Length ♀ 7 mm., ♂ 4 mm.

Vertex in the female, slightly narrower and more angulate than in *spadix*, the disc concave forming a blunt but angled margin with the face. Face strongly inflated, convex, the convexity extending to the blunt margin

instead of fading out to a definite marginal line as in *spadix*. Male with the vertex slightly acutely angled, the apex bluntly rounded, the margin thick and less angled than in the female. Elytra short, rounding in the female, exposing the pygofers and a triangle of the preceding segment. In the male parallel margined and equalling the abdomen, but exposing the pygofer spines. Female ovipositor extremely long, exceeding the pygofers by their dorsal length.

Color.—Females green, fading to cream, with the nervures darker green; males green with the elytra sooty-brown, the costal margin narrowly light, about six ivory spots in the apices of the anteapical cells, the bases of the apical and a few obscure ivory markings along the sutural margin. The color of the elytra may vary to a pale sandy brown, but in all cases the ivory spots exist and the nervures in these areas are margined with dark. There are three and sometimes four nervures at right angles to costa that are dark marked.

Holotype ♀, allotype ♂, three female, and two male paratypes and nymphs. Calexico, California, June 10, 1931, and two male paratypes, Yuma, Arizona, June 7, 1931 and June 12, 1934, all collected by the writer. One female paratype labelled "West of Califa, California, July 22, 1935, Oman" returned to him.

Memnonia albolinea Ball, n. sp.

Much larger and with a shorter head than in *consobrina*, male dark with an ivory line under the vertex margin and five light stripes on pronotum; female creamy white with a dark line above vertex margin. Length ♂ 3.5 mm., ♀ 5.5 mm.

Vertex shorter and broader than in *consobrina*, roundingly right angled, the disc sloping two-thirds its length then nearly flat with the margin sharp and angled with the face. Face less inflated than in *consobrina*. Elytra in the brachypterous female exposing three abdominal segments, the venation simplified, the apical cells minute or wanting. In the male they are as long as the abdomen and more flaring than in *consobrina*.

Color.—Females creamy white above and below, the vertex margin white with a dark line above and traces of one or two below. Elytra white with the longitudinal nervures on corium pale brown. Male with the vertex brown back of the ivory margin, the disc becoming smoky. Pronotum dark smoky with few light stripes sometimes interrupted. Elytra with the basal half subhyaline. The nervures broadly dark, apical half smoky or black, irridescent, sometimes with traces of ivory points in the apical and anteapical cells. Face brown, the clypeus black, below dark brown.

Holotype ♂ and eight paratype males five miles east of Old Baldy (9,000 ft.) in the White Mts., Ariz., June 18, 1936. Allotype ♀ and one female paratype all taken by the writer in a similar location on the Santa Catalina Mts., July 2, 1933. Five pairs of paratypes taken on the top of the Chiricahua Mts. June 9, 1933, by P. W. Oman and R. H. Beamer and returned to them.

Memnonia fossitia Ball, n. sp.

Resembling *consobrina* but larger, the vertex longer and more pointed; the males nearly twice the size and often pale cinnamon in color; females green or greenish cream with the elytra smoky olive subhyaline with brown nervures and black points. Length ♀ 5 mm., ♂ 3 mm.

Vertex in the female with the disc flatter than in *consobrina* with the margin definitely angled instead of rounding, disc not as depressed as in *albolinea*. Elytra in brachypterous forms exposing the last two or three segments of the abdomen, about as in *consobrina*, longer than in *alboline* with apicals short but definite instead of almost wanting. Male vertex much longer than in *consobrina*, nearer *albolinea*, more acutely angled than in either with the marginal line within the line of the clypeus below. Elytra decidedly more flaring than in *consobrina*.

Color.—Females pale creamy green, the elytra subhyaline heavily powdered, with brown nervures and black points. The exposed part of abdomen brown with white stripes. Below black, the upper third of the face pale green. Males tan above and below with dark vertices and a smoky cloud around the fennestrate areas, shading to all smoky and occasionally shining black with a band of small fennestrate spots across the anteapicals.

Holotype ♀, allotype ♂, and 10 paratypes from southeast of Douglas, June 10, 1936, and four paratypes Ash Fork. All taken in Arizona by the writer and a pair of paratypes taken at Cloudcroft, New Mex., July 24, 1936, by R. H. Beamer and returned to him.

Dicyphonia nigrita Ball, n. sp.

Female green, resembling *plura* Beamer, but with a shorter and broader vertex; male green with a broad median stripe and the posterior half of the elytra black. Length of ♀ 5 mm., ♂ 4 mm. Vertex parabaloid, scarcely as long as its basal width, about right angled in the female, acutely angled in the male, the tips rounding in both cases. Elytra as long as abdomen in both sexes, venation similar to *plura* but the outer anteapical cell usually almost round and petiolate.

Color.—Females green, paler on vertex and below. A triangular black spot either side the apex and a faint dark line along the margin of vertex. A dark dot at apex of clavus and another at the end of the inner apical nervure. Males, green, a broad black stripe occupying one-third of the vertex and widening on the pronotum, extends to the middle of the elytra where it widens to cover the whole posterior half. This stripe omits an ivory wedge on the apex of vertex and a number of ivory spots in the apical and antiapical cells, the outer ones sometimes forming a light triangle running in from the costal margin. The nervures in this area are broadly tan colored. Below green, the abdomen black with a green band across the last segment and base of plates.

Holotype ♂, allotype ♀, and eight paratypes taken at the 399 kilometer post (out of Mexico City) on the Acupulco Road, Aug. 24, 1936, and six paratypes at the 382 post, Aug. 29, 1936, all taken by Ball and Stone.